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In cooperation with State, Federal, and Other Agencies

COTTON INSECT CONDITIONS FOR WEEK ENDING JULY 15, 1949
(Fifth Cotton Insect Survey Report for 1949)

This is a critical period in cotton production. Every cotton field should be examined carefully at least once each week to determine cotton insect conditions.

The boll weevil situation continues to be serious. Weevils are abundant in most areas where they occur in the States east of Texas and Oklahoma. In general, conditions have been favorable for both cotton and weevils. In most localities cotton is squaring so rapidly that many bolls are developing in spite of heavy weevil infestations. Hot, dry weather has helped to reduce the weevil populations in many localities. Beneficial natural enemies including spiders and many predaceous and parasitic enemies of the boll weevil are helping the farmers in all fields. Insecticides are probably being used more widely for boll weevil control than in any previou year.

Insecticide shortages have been reported in most of the cotton-growing States, especially the formulations containing toxaphene and benzene hexachloride. Although the supplies of calcium arsenate, nicotine, and DDT have been reported as inadequate in some areas, few actual shortages of these insecticides have been reported. The insecticide industry is endeavoring to meet the tight situation. Several carloads of insecticides are being shipped from south Texas where the cotton crop is maturing rapidly to places where insecticides are now needed for cotton insect control including Mississippi.

The cotton leafworm has reached Texas at a later date than during any of the past 27 years. It is not likely to become a serious menace to the cotton crop this season. However, the spread of the cotton leafworm is quite unpredictable. It will be of interest to note its spread during 1949. Its appearance in any county should be reported promptly.

The bollworm is now sufficiently abundant in most of the States to cause serious losses to the cotton crop if conditions continue favorable for its development.

Excerpts from Weekly Cotton Weather Bulletin issued by the Weather Bureau, U. S. Department of Commerce, New Orleans, Louisiana, July 12.

OKLAHOMA: Condition mostly good, poisoning, with weather favorable for checking weevils.

ARKANSAS: Weather very favorable for weevils some counties, dry weather urgently needed.

LOUISIANA: Weather favorable for checking weevils though infestation continues heavy. Bolls setting well.

MISSISSIPPI: Weather favorable for checking weevils, but infestation continues heavy.

TENNESSEE: Cotton fairly good, some weevils reported.

ALABAMA: Cotton good condition, fruiting well, weevils heavy but control measures being applied.

GEORGIA: Cotton condition fair to good, growth improved. Favorable for checking weevils.

SOUTH CAROLINA: Cotton progress good, fruiting satisfactory, favorable for checking weevils.

NORTH CAROLINA: Weevil infestation throughout but considerable variation, heavy damage some areas, none in others.

ARIZONA: Insect infestation increasing rapidly, but held in check by widespread dusting.

CALIFORNIA, MISSOURI, NEW MEXICO, TEXAS: No comments concerning cotton insects.

THE TEXAS WEEKLY CROP AND WEATHER BULLETIN, Austin, Texas, July 11, states:

"Open weather favored control of insect pests."

"Insect infestations were being effectively combatted by poison."

INSECTICIDES

SOUTH CAROLINA: "A serious shortage of cotton insecticides has developed. Short supplies are reported from the farmer to the manufacturer. The manufacturers apparently underestimated the requirements, and the heavy weevil population has caused an unexpectedly heavy demand for poison. Unofficial reports from local formulators and manufacturers indicate that this shortage may continue during the rest of the dusting season." -- J. G. Watts, Entomologist, Edisto Experiment Station, July 16.

ALABAMA: W. A. Ruffin, Extension Entomologist, wrote on July 16: "The supplies of 20% toxaphene and the mixture of 3% gamma of benzene hexachloride - 5% DDT are very short in Alabama. We do not have 10% of the materials that are needed at the present time. The best information that we have indicates that there is a fair supply of calcium arsenate available. We are recommending that farmers use calcium arsenate for the control of the boll weevil. We are also emphasizing the use of calcium arsenate in alternate applications with the organic insecticides in order to spread the limited supply of benzene hexachloride-DDT and toxaphene. For example, we are advising that farmers use 1 application of calcium arsenate with 2% nicotine and the next application of toxaphene in order to help control bollworms.

"We have decided to recommend chlordane for the control of cotton insects. Dr. Arant and I are going to prepare a statement to send to all county agents, insecticide dealers, and other interested parties that will be in substance the following:

> Where recommended materials are not available, farmers may use a dust that contains not less than 10% chlordane, 5% DDT, and 40% sulfur. We believe that such a mixture should be used in preference to not dusting the cotton at all."

Calvin M. Jones, Entomology Department, Auburn, reported on July 16: "Some retailers of insecticides in the northeastern counties have not bought stocks of the dusts when they could have because the growers have not been concerned with cotton insect control in that section of the State in many years and they were afraid the growers would not dust this year although they were aware of the heavy boll weevil population The demand for the BHC-DDT mixture has been light and very few dealers have stocks of it on hand. There has been no indication of shortage of calcium arsenate."

MISSISSIPPI: The Weekly Cotton Insect Report issued by the State Plant Board, State College, July 18 states: "The 3-5 mixture of benzene hexachloride (BHC) and DDT was exhausted in most sections of the state, while toxaphene was also scarce. Dr. Lyle suggested that where only enough 3-5 mixture was available for one dusting, that two applications of calcium arsenate at 4-day intervals be applied first, then follow with the 3-5. Farmers using toxaphene are advised to apply it each time as long as the supply lasts, then change to calcium arsenate if no other treatment is available.

"In some localities calcium arsenate containing 2% nicotine is available and this is recommended alternately with calcium arsenate alone. Other materials offered in some sections are a mixture of 1% BHC, 5% DDT and 5% chlordane, and a preparation of neutral calcium arsenate containing 1% BHC. Both these dusts are considered in the experimental stage but Dr. Lyle stated that it was believed they would be effective if used for every application. Liquid sprays are also considered as experimental but good results are being reported in several cases where they have been used. Dust containing 3% gamma BHC alone are also available in some places and are suggested for alternate use with calcium arsenate, making a later application of 5 or 10% DDT if bollworms develop.

"Where other poisons are not secured, prompt dusting with calcium arsenate is advised to save the crop before it is too late, said Dr. Lyle, stating that if lice should later develop other chemicals, including the very effective parathion, will probably be available before any damage is done by the lice."

LOUISIANA: The supply of organic insecticides does not appear to be so limited in south central Louisiana but supplies are very limited in the northern part of the State. Some calcium arsenate is still available. However, there does not appear to be enough insecticides in the hands of jobbers and dealers to complete the poisoning program against weevils.

ARKANSAS: The supply of organic insecticides is very limited in the southeastern part of the State, and there does not appear to be enough in the hands of distributors to complete the control program against boll weevils. Calcium arsenate is still available.

BOLL WEEVIL

NORTH CAROLINA: Boll weevils were found in all of the 106 fields examined in 20 counties with an average infestation of 25% punctured squares as compared with 22% the previous week. During the week ending July 15, 21 of the 106 fields examined had less than 11% of the squares punctured, about the same as the previous week. Last week 18 of the fields examined in Hoke, Robeson, Scotland, Northampton, Cumberland, and Sampson Counties had more than 50% of the squares punctured.

The weekly report on cotton insects issued by the Extension Service, Raleigh, for the week ending July 15 states: "The cool, damp weather which has prevailed over North Carolina during the past weeks has been very favorable for weevil development. First generation weevils were reported last week in Scotland, Robeson, and Hoke Counties. This week first generation weevils were seen as far north as Wilson and Johnston Counties.

"Examination of egg punctured squares in 15 fields of Sampson, Cumberland, and Wayne Counties showed that about 80% of the punctured squares had boll weevil pupae. Emergence of adult weevils from such infested squares can be expected within the next week, and dusting to control this generation of weevils is strongly urged. The success of dusting programs depends a great deal on the control of this generation of weevils. From now on through the time of weevil migration in August it is especially

important that growers continue to dust in order to keep weevil infestations at a low level. In the central and northern counties infestations are also on the increase, and a great deal of weevil damage may result in fields that hitherto have had light weevil infestations."

SOUTH CAROLINA: Second generation boll weevils are emerging in large numbers and the infestation is increasing rapidly in most fields. All of the 110 fields examined in 22 counties were infested with an average of 59% punctured squares in unpoisoned fields as compared with 21% in poisoned fields. On this date a year ago the unpoisoned fields averaged 29% punctured squares as compared with 12% in the poisoned fields. In the 78 unpoisoned fields examined the infestation rangod from 26 to 50% in 32 fields and more than 50% of the squares were punctured in 46 fields. In 32 poisoned fields the infestation ranged from 1 to 10% in 3 fields, from 11 to 25% in 15 fields, and from 26 to 50% in 14 fields. None of the poisoned fields had more than 50% of the squares punctured. (F. F. Bondy)

L. M. Sparks, Jr., Extension Service, reported for the week ending July 16 that weevils were found in 162 of the 166 fields examined in 34 counties. The average infestation in the fields that had been poisoned for boll weevil control was 21.3% punctured squares as compared with 43.6% in the unpoisoned fields. The 4 fields in which no punctured squares were found are located in Calhoun, Laurens, Spartanburg, and York Counties.

"The square infestation in two untreated fields in Bamberg County was 77.5% compared with 50% last week. In 6 fields treated 2 or more times the infestation was 33.9% compared with 36.7% in the same fields last week. In 6 untreated fields in Barnwell County the square infestation was 71.2% compared with 51.9% last week. In 11 fields receiving a regular dust schedule the square infestation was 5% compared with 3.8% last week. In 12 other fields regularly poisoned except that 10 to 12 days had elapsed since the last application, the infestation was 18.5% compared with 3.5% in the same fields a week ago." (J. G. Watts, Entomologist, Edisto Experiment Station, July 16)

GEORGIA: Weevil infestations continue high in all sections of the State, especially in both Piedmont districts. Infestation was found in 461 of the 466 fields examined in 112 counties. No punctured squares were found in 5 fields examined in Tattnall, Ware, Pulaski, and Clinch Counties. The infestation ranged from 1 to 10% in 66 fields, from 11 to 25% in 154 fields, from 26 to 50% in 136 fields, and in 104 fields more than 50% of the squares were punctured.

ALABAMA: W. A. Ruffin, Extension Entomologist, wrote on July 16: "Last week, I visited all of the counties in the Tennessee Valley which include Limestone, Lauderdale, Jackson, Madison, Morgan, Lawrence, Colbert, De Kalb, and Franklin Counties. Weevil infestation in old fields of cotton averaged 25%; young cotton in the same area ranged from 5 to 10% infestation. It is evident that young weevils of the first generation are emerging in large numbers in this area. Farmers need to be dusting their cotton.

"In order to emphasize the desperate situation that we are in in Alabama, in De Kalb County all fields of cotton have had an average yield of one bale or more of cotton per acre for many years. I cannot recall a year when boll weevils damaged cotton in this County to any appreciable extent. At the present time the weevil infestation over that County is just as high as it is in any of the south Alabama counties."

Calvin M. Jones examined 46 fields in 10 northeastern counties and only 1 field had less than 23% punctured squares. In 23 of the fields the infestations ranged from 50 to 89% punctured squares. Six of the fields in Blount, Cherokee, Cleburne, Jackson and Talladega had more than 75% of the squares punctured.

TENNESSEE: All cotton fields in Tennessee should be examined and insecticides should be applied when the boll weevils become sufficiently abundant to cause serious loss if not checked. Although reports have not been received directly from Tennessee there are probably more boll weevils in that State now than in July of any recent year. Reports from the 4 Alabama counties of Lauderdale, Limestone, Madison, and Jackson, that are adjacent to Tennessee, state that the weevils were found in all fields examined and averaged about 25% punctured squares. These counties form the northern boundary of Alabama and are adjacent to the Tennessee counties of Hardin, Wayne, Lawrence, Giles, Lincoln, Franklin and Marion. Also the 5 fields examined in De Soto County, Mississippi, immediately south of Shelby County, Tennessee, were infested with an average of 26% punctured squares. The counties in Mississippi, immediately south of Fayette, Hardeman, and McNairy Counties, have reported heavy boll weevil infestations through June and July.

MISSISSIPPI: Clay Lyle, Entomologist, reported on July 18: "Shortages of preferred insecticides dominated the cotton insect situation the past week." He stated that weevils were found in 430 of the 457 fields examined in 51 counties; that is, weevils were found in 94% of the fields examined. Only 27 of the fields all in Delta Counties were free of weevils. Outside of the Delta weevils were found in all of the 199 fields examined. The average infestation of all infested fields was 28% punctured squares as compared with 27% the previous week and 14% at this time last year when only 60% of the fields examined were infested with weevils.

In the Delta counties the weevil situation is still critical. Weevils were found in 231 of the 258 fields examined in 16 Delta counties at the average rate of 21% punctured squares, as compared with 16% last week and 19% the previous week. Thirty-one fields with more than 40% punctured squares were reported from Bolivar, Coahoma, Holmes, Leflore, Panola, Sharkey, Sunflower, Tunica, Warren, and Yazoo Counties.

In addition the Delta and Pine Land Company in Bolivar County reported 342 of the 352 fields examined had infestations ranging up to 74% punctured squares, averaging 21% as compared with 16% last week.

LOUISIANA: Rains and cloudy weather continued through the week and conditions were most favorable for weevil development. The average boll weevil infestation in 510 fields in 20 parishes was 18% punctured squares as compared with 14% during the same week in 1948, 21% in 1947, 41% in 1946, 27% in 1945, and 9% in 1944. No punctured squares were found in 26 of the 510 fields examined. The infestation ranged from 1 to 10% in 192 fields, from 11 to 25% in 160 fields, from 26 to 50% in 104 fields, and more than 50% of the squares were punctured in 28 fields in Red River, Natchitoches, Ouachita, Morehouse, West Carroll, East Carroll, Madison, Tensas, and Concordia Parishes.

Considerable poisoning for boll weevil control has been reported particularly in the northern part of the state.

ARKANSAS: The average boll weevil infestation in 57 fields in 6 southeastern counties was 29% punctured squares as compared with 7% in 1948, 30% in 1947, 29% in 1946, 11% in 1945, 5% in 1944, and 8% in 1943. No punctured squares were found in 2 of the 57 fields examined. The infestation ranged from 1 to 10% in 7 fields, from 11 to 25% in 17 fields, from 26 to 50% in 23 fields, and in 8 fields in Ashley, Chicot, Desha, and Lincoln Counties more than 50% of the squares were punctured.

The average weevil infestation in 18 fields in 3 southwestern counties was 43% punctured squares as compared with 33% last week and 31% 2 weeks ago. All fields examined were infested. The infestation was 8% in 1 field, from 11 to 25% in 3 fields, from 26 to 50% in 8 fields, and more than 50% of the squares were punctured in 6 fields.

TEXAS: Scattered showers and rains occurred in many sections of the State and conditions were favorable for cotton insects. No boll weevil infestation records were made in the Lower Rio Grande Valley and the Coastal Bend areas on account of the maturity of the cotton crop. In central and north central Texas weevils are causing serious damage in some fields, particularly in bottom lands. In rank growing cotton, weevil infestations are continuing to increase. The average infestation in 694 fields examined in 38 counties was 12% punctured squares as compared with 9% last week and 18% at this time a year ago. The infestation varied considerably in the different counties in central and north central areas. By counties, the average percentages of punctured squares were as follows: Grayson 47%, Fannin 27%, Lamar 23%, Ellis 19%, Collins 17%, Kaufman 16%, Delta 15%, Dallas 12%, Rockwell 4%, Hunt 13%, Navarro 27%, Falls 22%, McLennan 15%, Williamson and Hill 5%, and Bell 3%.

OKLAHOMA: Weather conditions over most of eastern Oklahoma were favorable for weevil development and square infestation increased in many fields. The average infestation in 133 fields in 21 counties was 18% punctured squares as compared with 9% the previous week and 16% at this time a year ago. No weevils were found in 16 of the 133 fields examined. The infestation ranged from 1 to 10% in 50 fields, from 11 to 25% in 38 fields, from 26 to 50% in 23 fields, and in 6 fields in Wagoner, Pottawatomie, McIntosh, Okmulgee, Marshall, and Le Flore Counties more than 50% of the squares were punctured.

BOLLWORM

TEXAS: Scattered light to heavy bollworm infestations have been reported from the upper coastal area, north to Hearn and Taylor. There was some increase in infestation in the Waco area but the damage is confined to only a few fields at this time. Injurious bollworm infestations have also been reported from a few fields in Calhoun County.

OKLAHOMA: Bollworm eggs have been reported as being numerous in many cotton fields in Love, Wagoner, Muskogee, Okmulgee, Creek, Sequoyah, Okfuskee, and Tulsa Counties.

LOUISIANA: Bollworms have been reported in a few fields in Madison Parish where several applications of organic insecticides had been made for control of the boll weevil.

ARKANSAS: Charles Lincoln, Extension Entomologist, wrote on July 18 that a trace of bollworm has been general in western Arkansas. They have been controlled by natural enemies or by dust for boll weevil. In Lafayette County in the extreme southwestern part of the State, bollworm adults and eggs were fairly common on cotton on July 15.

ALABAMA: The bollworm, Heliothis armigera (Hbn.), has made its appearance in the cotton fields. Full grown larvae were collected on cotton by C. M. Jones in Hale County on July 6 and in Greene County on July 7. Apparently the tobacco budworm, Heliothis virescens (F.), continued to be more abundant as a "bollworm" in Alabama, as these insects were collected on July 5 in Dallas County, July 6 in Hale County, and July 7 in Greene County. There were six specimens of the tobacco budworm and two of the bollworm submitted for determination.

SOUTH CAROLINA: R. L. Walker made collections of the bollworm in cotton fields in Chesterfield and Marlboro Counties.

COTTON LEAFWORM

TEXAS: The first cotton leafworm report this year was from Calhoun County on July 18 by L. F. Greer. He also reported the first cotton leafworm last year in Refugio County on June 20, and in 1947 the first leafworms were collected in Nueces County

by D. H. Alexander on June 21.

PUERTO RICO: George N. Wolcott, Entomologist, Rio Piedras, wrote on July 6: "After an interval of 7 years during which we have no record of Alabama argillacea (Hbn.) in Puerto Rico, it has recently been noted at Isabela in some abundance." He states that there are authentic records of the appearance of the cotton leafworm in Puerto Rico in 1905, 1919, 1922-23, 1931-32, 1938-39, and 1942. During all of this period cotton has been grown commercially so an abundance of the host plant has been available at all times.

COTTON FLEAHOPPER, TARNISHED PLANT BUG, RAPID PLANT BUG AND OTHER MIRIDS

ALABAMA: The rapid plant bug, Adelphocoris rapidus (Say) and the tarnished plant bug, Lygus oblineatus (Say), were noted in cotton fields in Blount, Cherokee, Cleburne, Cullman, De Kalb, Jackson, Marshall, St. Clair, Talladega, and Tallapoosa Counties. The rapid plant bugs were more numerous than the tarnished plant bugs.

MISSISSIPPI: In the examination of 258 fields in 16 Delta Counties, the rapid plant bug was noted in 32 fields, the tarnished plant bug in 16 fields, the cotton fleahopper in 14 fields, and another mirid, Neurocolpus nubilus, was noted in 8 fields.

TEXAS: In the examination of 760 cotton fields in 50 counties there was an average infestation of 5.6 fleahoppers. In 254 fields no fleahoppers were noted, in 406 fields the infestations ranged from 1 to 10 per 100 terminals; in 68 fields the range was from 10 to 25; in 26 fields from 26 to 50; and in only 6 fields were there more than 50 fleahoppers per hundred terminals. The fleahopper infestations are light in the southern half of the State and are increasing in the northern and northwestern areas.

MISCELLANEOUS INSECTS

LOUISIANA: Between May 17 and June 6, 17 collections of aphids were made from cotton in the vicinity of Tallulah. Six of the collections consisted entirely of the cowpea aphid, Aphis medicaginis Koch, 10 consisted of both A. medicaginis and the cotton aphid, A. gossypii, and 1 collection consisted only of the cotton aphid, A. gossypii. These collections indicate that the cowpea aphid may have been more abundant and more widely distributed on cotton in the vicinity of Tallulah during May and June than the cotton aphid, Aphis gossypii, Glov.

TEXAS: Aphids collected from cotton near Fabens, El Paso County, on June 2 proved to be the cowpea aphid, Aphis medicaginis Koch (det. L. M. Russell). On April 28 Herman S. Mayeux found lace bugs damaging cotton leaves at McAllen. The injury noted was similar to fresh feeding by red spider mites. Most of the feeding by the lace bugs was on the upper surface of the leaves. These insects were determined by R. I. Sailer as Gargaphia iridescens Champion of the family Tingidae.

ARKANSAS: Charles Lincoln submitted 25 lepidopterous larvae collected on cotton in Monroe County on June 7 with a statement that garden webworms had been reported also in Lafayette County this spring. The insects were determined by H. W. Capps. There were 24 specimens of the garden webworm, Loxostege similalis (Guen.) and one specimen of the yellow-striped armyworm or cotton boll cutworm, Prodenia ornithogalli Guen.

MISSISSIPPI: In the examination of 258 fields in 16 Delta Counties, aphids were reported in 2 fields, grasshoppers in 1 field, and lepidopterous larvae in 13 fields.

ALABAMA: Calvin M. Jones reported the occurrence in small numbers of the yellow-striped armyworm or cotton boll cutworm, Prodenia ornithogalli Guen. in 3 cotton fields in Blount, Jackson, and Marshall Counties.

The grape colaspis, Colaspis flavida, was reported as damaging cotton squares in 2 fields in Jackson County.

ALABAMA: The carnation moth or rose leaf roller, Platynota stultana (Wlsm.), of the family Tortricidae, was found feeding on cotton in Dallas County, on July 5. (Collected by C. M. Jones and determined by H. W. Capps.)

C. M. Jones collected a large grub feeding in a cotton stalk at ground surface in Covington County on June 14 that was determined by W. H. Anderson as the larva of a large beetle, Prionus sp. of the family Cerambycidae. Dr. Anderson wrote: "Although the larvae of the subfamily Prioniae are primarily feeders in dead wood, we receive, fairly frequently, larvae from herbaceous plants. They belong to the genus Prionus or to one of its subgenera in almost all cases. The larvae of Prionus are subterranean in habits, normally living in roots of trees. If the land is cleared of the trees, the larvae may be forced to attack the planted crops. We most often receive them from corn fields. If more larvae are found in the cotton field, more specimens would be appreciated for the collection."

SOUTH CAROLINA: J. G. Watts, Entomologist of the Edisto Experiment Station, Blackville, reported on July 16 that there was a limited ammount of damage being caused by bollworms, and that red spider mites are apparently increasing, but no serious infestations have been reported.

INSECTS ON IRRIGATED COTTON OF THE SOUTHWEST

ARIZONA: There was little change in the injurious hemipterous insect populations in the Salt River Valley. Lygus spp. predominates in most fields but stink bugs are appearing in damaging numbers in some fields in the Highly, Gilbert, Mesa, Lehi, and Tempe areas. Large cotton acreages were dusted or sprayed in all parts of the Valley the past week. In Pinal County, there was a considerable increase in injurious insects in some fields over the previous week. Lygus spp. still predominates and dusting is general throughout the county. In the Santa Cruz Valley the injurious insects continued to build up in fields that have not been poisoned. Bollworms are a threat in this area and dusting is underway in practically all parts of the Valley.

NEW MEXICO: Bollworm infestations are still general in the Pecos Valley but heavy infestations were noted in only a few fields. Heavy aphid infestations were reported from a number of fields and control measures will be used. The injurious hemipterous insect populations are generally low but cotton fleahoppers were found in some fields in damaging numbers.

TEXAS: The hemipterous insect populations in the El Paso Valley decreased as a result of poison applications being made in some of the fields. The number of injurious hemipterous insects per 100 sweeps ranged from 0 to 12 as compared with a range of 4 to 28 last week. In 25 additional fields the average injurious insects was 9 per 100 sweeps.

The cotton fleahopper is more numerous in the El Paso Valley than in previous years but damage from this insect is relatively light. Stink bugs were taken in 17 of the 25 fields, ranging from 1 to 3 per 100 sweeps.

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